R-585-3-7-1

# REVIEW OF
# TEXAS EASTERN COMPRESSOR STATIONS IN PENNSYLVANIA
# PREPARED UNDER

TDD NO. F3-8702-19
EPA NO.
CONTRACT NO. 68-01-7346

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

MARCH 9, 1987

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY

The most widely occurring source of direct potential exposure for all 18 sites is the inhalation of PCBs volatilizing from contaminated surface soils, if contamination is extensive. The significance of this exposure varies from site to site; however, the sites with the greatest potential for exposure are Delmont, Armagh, Lilly, Entriken, Shermans Dale, and Bechtelsville. Surface soil concentrations at these sites may pose short-term threats, as well as increased carcinogenic risks.

Erosion of surface soils and the ultimate deposition of contamination in waterways is also of concern. Contaminated surface waters and stream sediments may provide a pathway for introduction of PCBs into the food chain. PCBs may bioaccumulate along the food chain and be introduced into the human diet through fish, cow's milk, etc. The potential for significant off-site PCB transport, as evidenced by the presence of notable concentrations in drainageways and/or surface waters and sediments, may exist at most (greater than 70 percent) of the sites.

The one site that exhibits the grossest contamination and significance via several potential direct and indirect exposure routes (i.e., volatilization, erosion, surface water, groundwater, and direct contact) is the Shermans Dale site. The Weston data indicate confirmed contamination of all sampled media including surface water, stream sediments, subsurface soils, groundwater, and surface soils up to 2.7 percent PCB.

## Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-7346. This specific report was prepared in accordance with Technical Directive Document No. F3-8702-19 for the Texas Eastern Compressor Stations in Pennsylvania.

## Scope

NUS FIT 3 was tasked to review the report entitled "Preliminary Report of Sampling Program at Texas Eastern Compressor Stations," dated December 1986, and locate the 18 stations within Pennsylvania on the United States Geological Survey (U.S.G.S.) topographic map. In addition, NUS was tasked to provide general information on geology, groundwater, and water supply for a one-mile radius surrounding each station and to evaluate, from a toxicological aspect, the chemical data provided in the referenced report.

## Introduction

The Texas Eastern Gas Pipeline Company (Texas Eastern) maintains a natural gas pipeline that traverses the state of Pennsylvania in two branches running from west to east. The pipe line, which passes through 22 counties, is equipped with a reported 18 compressor stations. The Weston report, "Preliminary Report of Sampling Program at Texas Eastern Compressor Stations," dated December 1986, prepared for Texas Eastern, identifies a total of 27 disposal pits at the 18 stations. In addition, this report, and a supplemental report, presents summary polychlorinated biphenyl (PCB) data for sampling activities at all 18 stations as well as Hazardous Substance List (HSL) compounds and dioxin from 2 sites. NUS has reviewed this report, in conjunction with other information sources, and has provided concise presentations for each station.

COPY 8702-19

**ROCKWOOD, PENNSYLVANIA**
**(22)**

COPY

# ROCKWOOD, PENNSYLVANIA (22)

## Location and Features

The Rockwood compressor station facility is within the Laural Mountain range of Somerset County, Pennsylvania, about 1-1/2 miles south of the small community of Milford. The facility can be located on the Murdock, Pennsylvania 7.5 minute United States Geological Survey (U.S.G.S.) quadrangle map at the approximate grid coordinates 39° 56' 18" N latitude and 79° 06' 12" W longitude (see figure 4-1 for location). The entire facility encompasses approximately 19 acres. Located within this facility are several buildings, an above-ground water tank and, according to the Weston report, one former disposal pit.[1] According to a Texas Eastern representative, the former disposal pit is backfilled and revegetated, and the compressor station is fenced with a locked gate.[2] The nearest surface water is located about 250 feet east of the eastern corner of the facility. This is an intermittent stream, which flows approximately 7,600 feet in a southeastwardly direction to Wilson Creek, a perennial stream. A review of the U.S.G.S. topographic maps (see figure 4-1) indicates that site drainage is in this direction. The area within a 1-mile radius of the facility is sparsely populated with about 80 scattered homes or 304 residents.

## Geology and Soils

The Rockwood site lies in the Allegheny Mountain Section of the Appalachian Plateaus Physiographic Province. The layered Mississippian and Pennsylvanian age rocks in this region have been folded into a series of northeast-southwest anticlines and synclines with flank dips between 5 and 20 degrees. The site is underlain by two formations: the Pennsylvanian age Glenshaw and Freeport Formations (see figure 4-2). Both of these formations are cyclic sequences of shales, sandstones, limestones, and coal. The Glenshaw Formation contains marine shales and limestones and several red beds, which are absent in the Freeport Formation. The Freeport Formation is the upper member of the Allegheny Group. The two remaining members of this group, the Kittanning and Clarion Formations, also subcrop and/or outcrop in the study area, and, like the previously discussed formations, are cyclic sequences of shales, sandstones, limestones, and coals.[3,4]

No site-specific soil information is available at this time.

## Groundwater

Groundwater storage and movement in the formations in the study area is a function of secondary porosity such as fractures, bedding plane fractures, joints, and solution channels. Intergranual pore space is an important factor in the sandstone beds of the formations discussed. The water table reflects the local topography with water levels at or near the surface in valleys and rising under hilltops. Groundwater movement is downward and laterally toward lower altitudes. The direction of groundwater flow at the site is expected to be southeast toward Wilson Creek.[4]

The principal aquifers of the Glenshaw Formation and Allegheny Group are the sandstone beds. These beds are good sources of water if not drained by coal mining activity and have good stratigraphic position. Local wells constructed in the Glenshaw Formation have an average depth of 190 feet and an average yield of 10 gallons per minute (gpm). Wells on the Freeport Formation have an average depth of 159 feet and yield of 12 gpm.[5]

## Water Supply

Approximately 304 residents utilize private wells and possibly springs as the sole source of potable water within a 1-mile radius of the site.[6] The nearest houses are approximately 250 feet north and southeast of the facility (see figure 4-1). Well water bearing zones range from 40 to 165 feet in depth.[7] There are no public water supplies within the study area (see figure 4-1).[6]

## Scope of Contamination

A total of 30 samples were obtained from the Rockwood location, including 4 soil borings (SB) from 1 disposal pit, 13 surface soil (SS) samples, 3 stream sediment (SD/S) samples, 2 surface water (SW) samples, 7 drainage ditch sediment (SD/DD) samples, and 1 well sample. Samples were analyzed for polychlorinated biphenyls (PCBs); minimum/maximum concentration ranges are reported as follows:

| | SS | SB | SD/S | SD/DD |
|---|---|---|---|---|
| PCB concentration (ppm) minimum to maximum | 0.063 to 3.6 | ND | 0.260 to 0.260 | 0.023 to 0.970 |

| WW | SW |
|---|---|
| ND | ND |

ND - none detected

## Toxicological Considerations

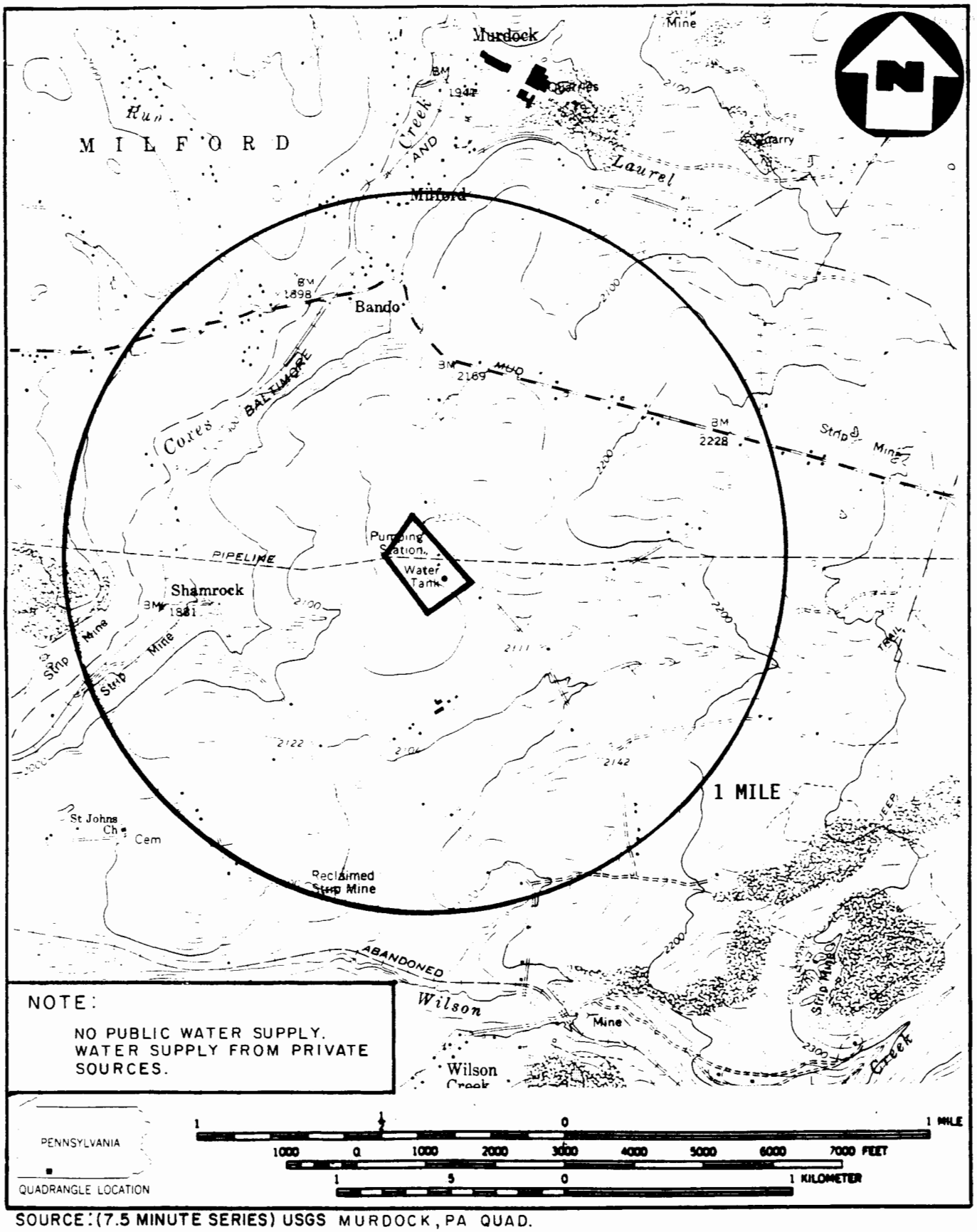
PCB concentrations reported in samples obtained from the Rockwood site were generally significantly lower than concentrations reported in similar samples from other disposal pit locations. Composite soil boring samples from the disposal pit did in fact reveal no measurable PCB concentrations.

Surface soil samples revealed up to 3.6 mg/kg PCBs, and volatilization of the contaminant from this medium would be expected to pose greater than a $10^{-6}$ inhalation cancer risk to on-site populations only.[8] This estimate is based on EPA-developed advisory levels for PCBs in soils, which suggest that concentrations of 0.5 mg/kg, 460 mg/kg, and 1.3 X $10^5$ mg/kg pose a $10^{-6}$ inhalation cancer risk for on-site populations, populations residing 0.1 km from a site, and populations residing 1 km from a site.[8] These risk estimates are based on PCB 1254 and assume an inhalation rate of $10m^3$ per day as a result of 182 days exposure per year, and extensive surface contamination (greater than 100 by 100 feet).

Direct contact with the concentrations of PCBs reported in surface soil samples (if indicative of the extent of contamination) would not be expected to result in any acute toxic effects, as well as a less than $10^{-6}$ cancer risk.[9] This risk estimate assumes intermittent contact (20 episodes per lifetime) and significant attenuation by soil.

Some transport of PCBs with surface runoff is suggested by the low levels reported in drainage ditch (970 ug/kg) and stream sediment (260 ug/kg) samples. No PCBs were measured above detection limits in surface water samples, however. PCBs have substantial bioconcentration factors (as high as $10^4$ to $10^6$), and can enter the food chain via benthic organisms.[10] While not significantly soluble in water, PCB levels as low as 0.032 ug/l in freshwater may result in bioconcentration in edible fish tissue above the Food and Drug Administration (FDA) tolerance level of 5 ppm.[11] Detection limits for aqueous samples obtained by Weston cannot be determined from available information.

While PCBs may slowly vaporize from surface soils and may be transported with surface runoff, their tendency to migrate in other ways (such as infiltration into groundwater) is extremely limited. If available sample data are representative, groundwater beneath the Rockwood site would not appear to be at significant risk of PCB contamination. One well sample obtained as part of this survey revealed no measurable PCB levels.




SOURCE: (7.5 MINUTE SERIES) USGS MURDOCK, PA QUAD.

FIGURE 4-1

## WATER SUPPLY MAP

## STATION ROCKWOOD, PA (22)

SCALE 1:24000

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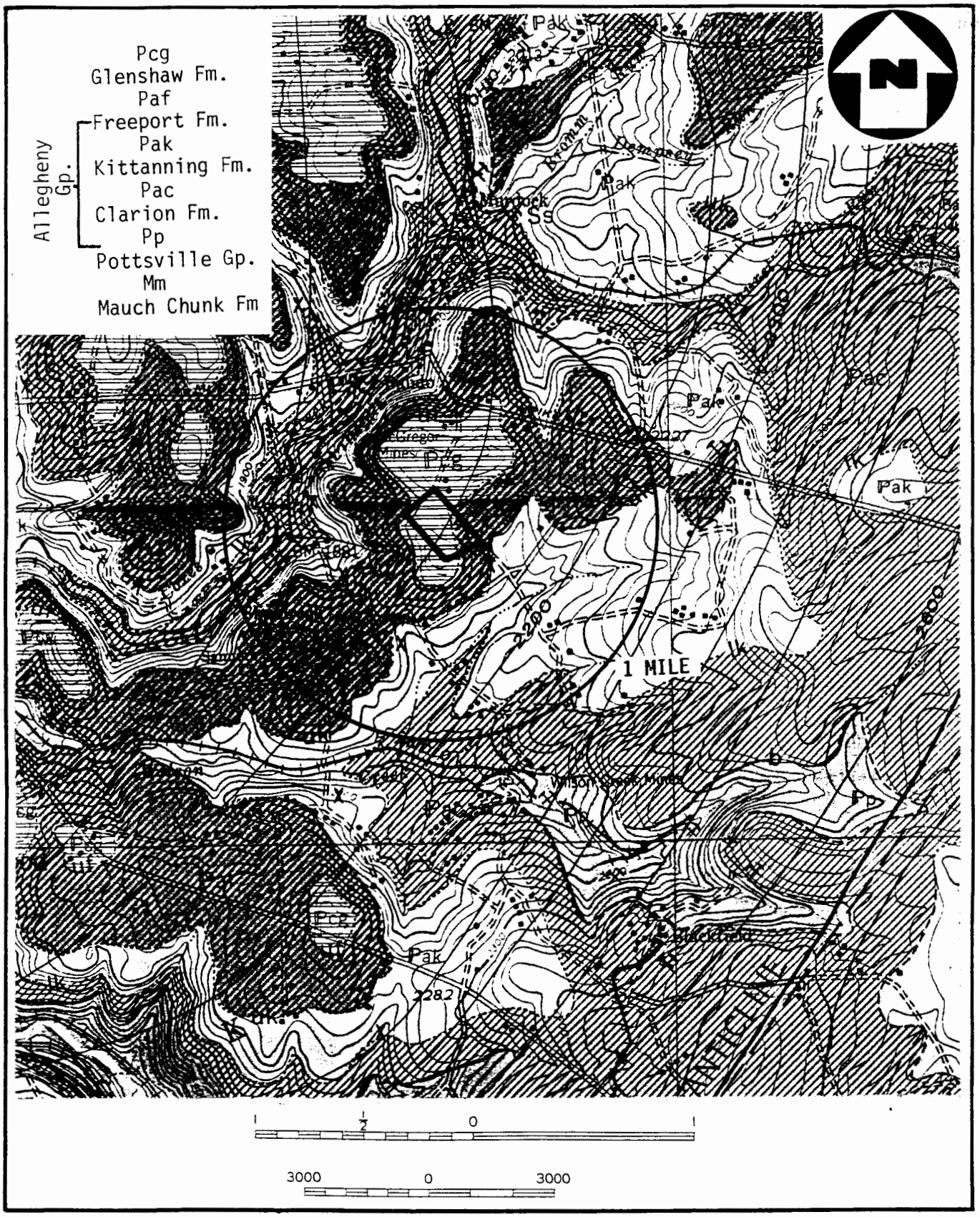


SOURCE : REFERENCE 2

FIGURE 4-2

GEOLOGIC MAP

STATION ROCKWOOD, PA (22)

SCALE : 1.6" = 1 MILE

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A Halliburton Company

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1. Weston. Preliminary Report of Sampling Program at Texas Eastern Compressor Stations. December 1986.

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4. Flint, Norman K., Pennsylvania Geological Survey. Geology and Mineral Resources of Southern Somerset County, Pennsylvania. County Report 56A, 1965.

5. Commonwealth of Pennsylvania Department of Environmental Resources, Bureau of Topographic and Geologic Survey. Groundwater Inventory System. 1984.

6. Young, Roger, Rockwood Water Company, with Thomas Pearce, NUS FIT 3. Telecon. March 3, 1987.

7. Pennsylvania Department of Environmental Resources. Groundwater Inventory System, Somerset County. May 29, 1984.

8. United States Environmental Protection Agency. 1986. Development of Advisory Levels for Polychlorinated Biphenyls Cleanup. Office of Research and Development, Washington, D.C. EPA 600/6-86/002.

9. Adapted from reference no. 8.

10. United States Environmental Protection Agency. 1980. Ambient Water Quality Criteria for PCBs. Office of Water Regulations and Standards, Washington, D.C. EPA 440/5-80-068.

11. United States Environmental Protection Agency. 1984. Health Effects Assessment for Polychlorinated Biphenyls. (Final Draft). Environmental Criteria and Assessment Office, Cincinnati, OH. ECAO-CIN-H004.

See TEXAS EASTERN PIPELINE - WINDRIDGE

STATION 20 PA-2166

section 1e

letter to Acting Secretary,
Department of Environmental Resources

from Howard C. Homeyer, President
Texas Eastern Gas Pipeline Company

February 22, 1987

3. Provide a detailed description of any and all procedures relating in any way to the closure of pits, ponds, or lagoons at compressor station sites.

The pits were backfilled by two different procedures. One procedure was enployed at the majority of sites. The larger pits located at St. Francisville, Union Church and Clinton compressor station sites were backfilled by a different procedure.

The pits typically contained two layers of fluids. The upper layer consisted of condensate and other hydrocarbons. The lower layer consisted of rainwater. At stations other then St. Francisville, Union Church and Clinton where a substantial amount of water existed in the pit prior to closure, the water was pumped off, generally over the ground at the station site. The earthen banks were then pushed in by bulldozer. If the banks were inadequate to fill the pit completely, additional fill was brought in, usually from other parts of the station.

Upon investigation, Texas Eastern has discovered that the information contained in Appendix 4 to a December 15, 1986 letter written by Carol E. Dinkins to Thomas L. Adams, Jr. was correct only with regard to the pits located at the St. Francisville, Louisiana, Union Church, Mississippi, and the Clinton, Mississippi compressor stations. The following information describes in detail the procedures used to close the large pit at the St. Francisville compressor station.

On July 9, 1984, a contractor to Texas Eastern set up a new Calgon carbon water filtration unit at the St. Francisville station in Louisiana. A 210' x 150' x 3' temporary impoundment lined with 20 mil PVC liner was built by Texas Eastern personnel on the station yard to contain the filtered water.

Filtering began on July 11, 1984. Samples of filtered water obtained on July 11, 1984 from the filtration unit discharge. These samples were analyzed by an independent laboratory and reported to contain less than one part per billion PCB. The lined impoundment contained approximately 127,000 gallons of water at that time according to measurements of the liquid volume. A two inch irrigation system with twelve spray heads was built by Texas Eastern personnel to spray the filtered water on the station yard. Spraying commenced and continued daily for approximately 8-12 hours per day throughout the project. When the station yard became saturated spraying was discontinued.

On Thursday, July 19, 1984 the water remaining in the earthen pit was approximately 6" deep. There was not enough water left in the pit to perform the backflush needed to clear the clogged filter. Filtration was ended at this time with 200 to 300 gallons of water remaining in the pit.

The solidification operation of the residue began on Friday, July 20, 1984. A total of eighteen truckloads (528.7 tons) of flyash were provided by the contractor. The ash was mixed using a dragline, a backhoe, and two bulldozers. The ash expanded over a twelve hour period to approximately 1.5 times its original volume as it absorbed hydrocarbons and water. The solidification was completed until there were no spots of soft material remaining and the mixture had the consistency of dry soil. The solidified material was graded to be higher on the west side of the pit to provide adequate drainage.

On Sunday, July 21, 1984 a 20 mil PVC liner was placed over the sloped solidified material, and the backfill operations commenced.

During the week of July 22, 1984 soil from the station yard was backfilled on top of the liner and graded to shed surface water. The backfill operation was completed by the end of that week.

The pit area was marked by iron posts with orange locator flagging placed at each corner of the liner. The posts are just below the ground surface. This marking was performed immediately after the backfilling was completed.

Similar procedures were followed on the earthen pits located at the Union Church, Mississippi and Clinton, Mississippi Compressor Stations. Except that Texas Eastern supplied its own mobile filtration unit at those two stations.

5. For each compressor station site, provide a detailed description of any and all security measures presently in existence at the compressor station site.

Barton, AL

The station perimeter is fenced with chain link fence having lockable gates. The station is manned 24 hours per day. There is a six foot chain link fence around the transformer yard. The former pit site is located within the fenced area.

Station 3 (Hope), AR

The station perimeter is fenced, and the fence gates are lockable. The station is manned 24 hours per day. The former pit site is located within a barbed wire fence.

Station 4 (Donaldson), AR

The station perimeter is fenced, and the fence gates are lockable. The former pit site is located within a hog wire barbed wire fence. The station and pig trap area are fenced with a separate six foot chain link fence with three strands of barbed wire on top.

Station 5 (N. Little Rock), AR

The station perimeter is fenced with six foot chain link fencing having lockable gates. The station is manned eight hours per day. The former pit site is located within the fenced area.

Station 6 (Bald Knob), AR

The station perimeter is fenced, and the fence gates are lockable. The station is manned 24 hours per day. The former pit site is located within the station area.

Station 7 (Egypt, Walnut Ridge), AR

The station perimeter is fenced, and the fence gates are lockable. The perimeter fence is six foot chain link fence with barbed wire on top. The former pit site is located within the fenced area.

Station 8 (Fagus, Pollard), AR

The station perimeter is fenced, with six foot chain link fence with barbed wire on top, and the fence gates are lockable. The former pit site is located within the fenced area.

Station 10 (Lick Creek), IL

The station facilities have a six foot chain link fence with three strands of barbed wire on top. The former pit site is located with a separate six foot chain link fence with three strands of barbed wire on top and a four foot gate with a lock.

Station 11 (Norris City), IL

The station perimeter is fenced with fencing having barbed wire on top. The fence gates are lockable. The station is manned 24 hours per day. The former pit site is located within the fenced area.

Station 16 (Lebanon), OH

The station perimeter is fenced with fencing having lockable gates. The station is manned 24 hours per day. The former pit site is located within the fenced area.

Station 17 (Five Points), OH

The station perimeter is fenced with fencing having barbed wire on top and lockable gates. The former pit site is located within the fenced area.

Station 18 (Crooksville, Somerset), OH

The station is manned 24 hours per day. The entire property is fenced with four foot chain link fence on two sides and four foot woven wire fence on the other two sides. The gates in the fencing lock. The former pit sites are located within the fenced area.

Station 19 (Sarahsville, Summerfield), OH

The station is manned 24 hours per day. The entire property is fenced with four foot chain link adjacent to the road and the reminader of the fencing being woven wire (80%) and barbed wire. The gates in the fencing lock. The former pit site is located within the fenced area.

Wheelersburg, OH

The station is manned 24 hours per day. Station facilities are fenced with six foot chain link fence with barbed wire on top. The rear property line has a four foot chain link fence. The former pit site is separately fenced by a six foot chain link fence with barbed wire. The gates in the fencing lock. The remainder of this property is unfenced.

Armagh, PA

The compressor area is fenced with six foot chain link fence with three strands of barbed wire on top. The gates in the fencing lock. The remainder of the property is not fenced. One former pit site is located inside the fenced area and one former pit site is located outside. The former pit site located outside of the existing fencing is enclosed by a separate fence. The compressor building is equipped with alarms to detect unauthorized entry.

Bechtelsville, PA

The station is manned 24 hours per day. The entire property is fenced with a four foot chain link fence. The gates in the fencing lock. The former pit sites are located within the fenced area.

Station 22A (Bedford), PA

The station is manned 24 hours per day. The entire property has a chain link fence, six feet high in front with barbed wire on top and four feet high on the sides and back. The gates in the fencing lock. The former pit sites are located within the fenced area.

Bernville, PA

A six foot chain link fence with three strands of barbed wire on top surrounds the entire property except for a 60-foot section of barbed wire fence on the north side of the property along a township road. There is no pit at this station.

Station 23 (Chambersburg), PA

The entire property is fenced. The east side (on Rt. 11) has six foot chain link fence with barbed wire on top, the north side has six foot chain link fence for 40 feet, and the remainder is four foot five-strand barbed wire, the west side has six foot chain link fence for 1,000 feet and the remainder is four foot five-strand barbed wire, and the south side has a four foot five-strand barbed wire fence. The fencing is equipped with gates that lock. The former pit sites are located inside the fenced area.

Station 21A (Connellsville), PA

The station is manned 24 hours per day. The entire property is fenced with six foot chain link on the fron (road) side and four foot chain link on other three sides. The gates in the fencing lock. The former pit sites are located inside the fenced area.

Delmont, PA

The station is manned 24 hours per day. The entire property has a four foot chain link fence with gates that lock. The former pit sites are located inside the fenced area.

Entriken, PA

Alarms to detect unauthorized entry are present in the compressor building. The compressor area is fenced with six foot chain link fence with three strands of barbed wire. The gates in the fencing lock. The remainder of the property is unfenced. The former pit sites are located inside the fenced area.

Grantville, PA

The station is manned 24 hours per day. The entire property has a six foot chain link fence with three strands of barbed wire on top. The gates in the fencing lock. The former pit sites are located inside the fenced area.

Holbrook, PA

The station is manned 24 hours per day. The entire property has a four foot chain link fence. The gates in the fencing lock. The former pit sites are located inside the fenced area.

Lilly, PA

The station is manned 24 hours per day. The compressor area is fenced with four foot chain link fence. The gates in the fencing lock. The remainder of property is unfenced. The former pit sites are located inside the fenced area.

Station 24A (Marietta), PA

The station is manned 24 hours per day. The entire property is fenced. An eight foot chain link fence with barbed wire on top is located at the front facing Route 441, and the remaining sides have a four foot chain link fence. The gates in the fencing lock. The former pit sites are located inside the fenced area.

Station 24 (Marietta), PA

The station is manned 24 hours per day. The entire property has an eight foot chain link fence with barbed wire on top. The gates in the fencing lock. The former pit sites are located inside the fenced area.

Perulack, PA

The compressor station is manned 24 hours per day. An alarm to detect unauthorized entry is located on the Leidy compressor building. The entire property has four foot chain link fence with gates that lock. The former pit sites are inside the fenced area.

Station 25 (Eagle), PA

The compressor area is fenced with six foot chain link fence with barbed wire on top. The remainder of property is unfenced. The former pit sites are located outside the station fencing but they are enclosed with a separate four foot high chain link fence.

Station 22 (Rockwood), PA

The facility is fenced with a six foot chain link with three strand barbed wire on top around the facilities with locking gate. The remainder of the property is not fenced. The former pit sites is located within the fenced area.

ShermansDale, PA

The compressor area has a six foot chain link fence with three strands of barbed wire on top. The remaining property is unfenced. There is an alarm to detect unauthorized entry on the compressor building and units. The former pit sites are located inside the fenced area.

Station 21 (Uniontown), PA

The facility is fenced with a six foot chain link fence with three strands of barbed wire on top. The remainder of the property is not fenced. The former pit site is located within the fenced area.

Station 20 (Wind Ridge), PA

The compressor area is fenced. The west side has a six foot chain link fence and the other three sides have a three foot chain link fence. The gates in the fencing lock. There are alarms to detect unauthorized entry on control cab and compressor building. The former pit site is located outside the station fencing but it is enclosed with a separate six foot fence.

Gladeville, TN

The station perimeter is fenced with chain link fence having lockable gates. The former pit site is located within the fenced area. The station is manned 24 hours per day.

6. Provide a complete listing of the compressor station sites where bottled water has, at any time, been supplied for the use of compressor station personnel in replacement of well water, including, for such site, the date bottled water was first supplied and a detailed description of the reason bottled water was supplied.

Station 4 (Donaldson), AR

The station began using bottled water in August, 1982 due to iron content in the well water.

Owingsville, KY

The station began using bottled water in 1955 due to gas in the water well.

Callou Island, LA

The station uses bottled water since this station is located on a offshore platform.

Lake Roccourci, LA

The station uses bottled water since this station is located on a offshore platform.

Pointe Au Chien, LA

The station uses bottled water due to bad taste in the water supply.

White Castle, LA

The station has always used bottled water due to bad taste in the water supply. In addition, coliform has tested positive in the water supply since June, 1986.

Station 9 (Oran), MO

The station began using bottled water in August, 1986 due to iron content.

Kosciusko, MS

The station began using bottled water in January, 1986 due to bad taste in the station water.

Berne, OH

The station began using bottled water in July, 1983 due to bad taste in the station water.

Armagh, PA

Bottled water has been supplied since January 1, 1987. The well water was found to contain trace amounts (maximum 0.2 ppb, minimum 0.06 ppb, 4 samples) of PCB.

Bechtelsville, PA

Bottled water has been supplied since January 29, 1987. The well water was found to contain trace amounts (maximum 0.2 ppb, minimum 0.1 ppb, 3 samples) of PCB.

Delmont, PA

Bottled water has been supplied since March 1985. The well water at the station was considered to contain excessive amounts of iron.

Entriken, PA

Bottled water has been supplied since January 12, 1987. The well water was found to contain trace amounts (maximum 0.150 ppm, minimum 0.035 ppm, 5 samples) of PCB.

Grantville, PA

Bottled water has been supplied since October 15, 1984. The well water was found to contain a high bacterial count.

Holbrook, PA

Bottled water has been supplied since 1960. The well water at the station developed taste problems at the time of some nearby off-site construction.

Shermansdale, PA

Bottled water has been supplied since January 15, 1987. The well water was found to contain trace amounts (maximum 0.1 ppb, minimum 0.1 ppb, 2 samples) of PCB.

Station 2 (Atlanta), TX

The station began using bottled water in 1983 due to coliform in the well water.

Joaquin, TX

The station used bottled water until 1976. The well water was not potable due to salt content and gas. The station is now on city water.

7. Provide a detailed description of any and all activities undertaken, or procedures implemented, at compressor station sites to address any potential hazard or threat to the health of the public, Texas Eastern personnel or to the environment.

Texas Eastern Gas Pipeline Company (Texas Eastern) has constructed its compressor stations in remote locations whenever possible in order to minimize safety risks to nearby land uses, and to minimize land use conflicts arising from the noise generated by the pipeline compressors.

Texas Eastern has maintained a comprehensive safety training program for its compressor station personnel and other employees. Compressor station personnel are required to attend regular safety meetings. In addition, those employees whose job duties bring them into contact with hazardous or toxic materials are given additional training. All employees who handle such materials are provided with appropriate protective clothing and equipment. Comprehensive noise surveys are taken at all compressor stations and hearing protection equipment is provided to all workers who enter areas designated as requiring hearing protection in accordance with OSHA regulations.

Security at each compressor station is provided by a variety of mechanisms. Each compressor station is fenced, either at the property boundary or at the perimeter of the area where the compressors and other units are located. All gates at the fencelines can be locked and are locked when no Texas Eastern personnel are present. A majority of the compressor stations are manned 24 hours per day. At unmanned stations or stations that are manned for less than 24 hours per day, alarms are installed to detect unauthorized entry at the compressor buildings and some other units. The response to request 5 contains more detailed information about security measures in place at Texas Eastern's compressor stations.

The use of polychlorinated biphenyls (PCBs) was first instituted for safety reasons at Texas Eastern's compressor stations. Since PCBs are resistant to heat and oxidation, oil containing PCBs represented an ideal fire-resistant lubricant for use in pipeline compressors. In January 1972, Texas Eastern was notified by Monsanto Chemical Company, the manufacturer of the PCB lubricating oils, that PCB lubricants would not be sold after June 1972 because the PCBs contained in the lubricant tend to persist in the environment. Texas Eastern immediately began to phase out its use of PCB lubricants, and by 1977 it had completely eliminated the use of PCB lubricants in its compressors.

A problem remained with residual concentrations of PCBs in the compressors, however. PCB lubricant which could not be completely swabbed from every internal crevice and cavity of the compressors or which was absorbed in the various seals and gaskets tended over time to contaminate the replacement oil. Texas Eastern would reduce the PCB concentration in the compressor oil below 50 parts per million (ppm) often only to find later that the PCB concentration had climbed back above the 50 ppm mark. Some compressors had to be drained five or six times before the residual PCB concentration could be stabilized below the 50 ppm level of regulatory concern.

By March 1979, only seven compressors showed PCB concentrations in excess of 50 ppm. By January 1980, however, PCB concentrations at a majority of the 24 compressors had again climbed above 50 ppm, and Texas Eastern once more decontaminated these units. By July 1981, Texas Eastern's sampling program showed that all 24 pipeline compressors were in compliance with 50 ppm standard. In July 1982, however, the PCB concentration at 16 pipeline compressors had again risen above the 50 ppm standard, and the United States Environmental Protection Agency (EPA) issued a complaint against Texas Eastern. Texas Eastern was assessed a $159,800 civil penalty, but the penalty was remitted under the terms of an agreement with EPA because of Texas Eastern's continuing good-faith efforts to decontaminate the compressors. Texas Eastern continues to monitor the PCB concentrations in its compressor lubricating oils and it drains any compressor when the lubricant PCB concentration which it contains approaches 50 ppm. Texas Eastern also continues to report the results of its lubricant monitoring program to EPA.

A second major program relating to PCBs which was implemented by Texas Eastern involved the removal of PCB-containing liquids from the pipeline. PCBs first were discovered in the pipeline liquids in January 1981. These pipeline liquids are composed primarily of hydrocarbon distillates and condensates which enter the pipeline in the gas stream and collect in thin films along the walls of the pipeline as well as in valves, flow control devices, and other points where reductions in pipeline pressure occur. PCBs which apparently escaped past compressor seals over the years dissolved and accumulated in the pipeline liquids. As the more volatile pipeline liquids flashed off and recondensed elsewhere in the pipeline, the PCBs became concentrated in the remaining liquids, much as they would in a distillation process.

Following the discovery of PCBs in the pipeline liquids, Texas Eastern took immediate steps to protect the gas-consuming public. In March 1981, Texas Eastern sampled 36 locations for PCB contaminated pipeline liquids and submitted a report of its results to EPA. By January 1982, EPA had approved a pipeline liquids monitoring plan submitted by Texas Eastern, and Texas Eastern began submitting quarterly reports of its sampling program results.

At this time, Texas Eastern also implemented a series of measures designed to reduce the volume of PCB-containing liquids in the pipeline and to reduce the volume of liquids entering the pipeline and becoming contaminated with PCBs. Texas Eastern installed filter-separators at various points downstream of PCB sources to reduce the volume of PCB-containing liquids moving downstream. Texas Eastern also constructed a large dehydration facility at Grand Chenier, Louisiana to reduce the volume of liquids entering the pipeline from offshore gas fields. Texas Eastern conducted repeated scraper runs through the pipeline system and it also tried cleansing the pipeline by running slugs of solvents such as methanol or diesel fuel through the pipeline between two scrapers. To ensure access to all portions of the pipeline, Texas Eastern installed scraper traps on those portions of the looped pipelines that previously lacked facilities for internal cleaning. Texas Eastern continues to operate its liquid removal program and continues to submit regular reports to EPA about its liquid removal program.

At the time that PCBs were discovered in the pipeline condensate, Texas Eastern also accelerated its program of installing diffuser/accumulator tanks at its compressor stations. These tanks were designed to replace open pits which traditionally were used in the pipeline industry to contain liquids removed from the pipeline. One reason for the use of open pits was that the liquids that are collected in the pipeline system are discharged from that system at high pressures. These pressures could not easily be contained in a tank or other container. In 1975, Texas Eastern developed a design for a "blowdown" or diffuser tank which could replace the pits. Installation of these tanks at each of Texas Eastern's compressor stations was completed in 1984.

All pipeline liquids collected in the diffuser/accumulator tanks were analyzed for their PCB content before disposal. The results of these analyses determined whether the liquids were disposed of by landfilling or incineration, as required by the applicable regulations.

In 1985, Texas Eastern retained the consulting services of Roy F. Weston, Inc. (Weston) to develop and conduct a detailed sampling program for the pit sites. Weston implemented a pilot study program to investigate eight compressor station sites. Since then, Weston has completed its sampling program and prepared the Preliminary Report of Sampling Program at Texas Eastern Compressor Stations, which contains the results of further detailed investigation at the eight pilot sites as well as data from a systematic screening program at the 54 other sites containing earthen pits that may have been exposed to PCBs. This report has been submitted to EPA, and all other states in which Texas Eastern's pipelines are located. Final versions of Weston's pilot study program and screening study program reports are expected to be submitted to EPA next week.

Texas Eastern proposes to promptly initiate remediation of all station sites on its system which contain PCB concentrations above acceptable levels. To achieve this objective in a comprehensive and orderly manner, Texas Eastern requested that Weston prepare a "generic" cleanup plan. The plan is premised on the assumption that a uniform approach to cleanup can be developed, based on similarities of function and equipment of the individual stations. The generic plan, together with existing and any supplemental site specific data, would form the basis for the development of individual cleanup plans for each of the affected stations.

Texas Eastern has implemented a number of measures to minimize threats to health and the environment until the remediation program is begun. Texas Eastern has installed silt fences at appropriate locations to prevent the offsite migration of PCB-containing surface soils. More details about these efforts are contained in the response to request 4. Texas Eastern has initiated a source control program to eliminate or minimize PCB contamination from compressor station sources other than the earthen pits, such as scraper receivers, compressor sumps, etc. Texas Eastern also has supplied bottled water to all compressor station sites where sampling of well water systems indicated the presence of any detectable amount of PCBs. Finally, Texas Eastern has retained the services of two toxicologists to provide technical assistance and advice to its employees regarding the presence of PCBs at its compressor stations.

8910-16-22

WESTON

## Silt Fence Installation Program

The Phase I: 8 Pilot Site Sampling Program was initiated in December 1985 and completed in February 1986. Based on the results of this investigation, a silt fence installation program was initiated on April 16, 1986 to minimize/mitigate surface transport of PCBs. Approximately 400 feet of silt fence was installed at 3 of the 8 pilot sites along drainage pathways and related downslope areas. The three station sites included Bechtelsville, Delmont and Owingsville. Table 1 provides a summary of the silt fence installation program at the 3 station sites.

The Phase II: 8 Pilot Site Sampling Program and the 54 Site Screening Program commenced in June 1986 and was completed in October 1986. Based on the results of these programs, over 7,100 feet of silt fence was installed at 37 of the 62 station sites. The installation of the silt fences occurred from November 10, 1986 through January 21, 1987. In addition, at two station sites (Barton and Perulack), drainage control material called Curlex Blankets were installed in drainage pathways. Curlex Blankets are designed to control erosion in areas of high velocity water runoff. Table 2 provides a summary of the compressor stations at which silt fences were installed and the quantity of silt fence installed at these station sites.

The silt fences were installed at and downslope of areas containing elevated levels of PCBs and along drainage pathways. The criteria used to select areas at the station sites for installation of the silt fences included:

- A nominal PCB concentration of 50 ppm.
- Local topography around the areas containing PCBs.
- Drainage patterns at the station site.

The silt fence material consisted of a black, woven polypropylene geotextile fabric meeting Class 3 construction specifications for geotextile materials. The silt fence material was preassembled with a height of approximately 3 feet and a post spacing of 5 feet. Figure 1 shows a side and top view of an installed silt fence.

## Table 1 - Phase I: 8 Pilot Site Sampling Program

## Silt Fence Installation Program

| Compressor Station | Date | Quantity of Silt Fence Material (ft) |
|---|---|---|
| Bechtelsville, PA (BEC) | 4/16/86 | 160 |
| Delmont, PA (DEL) | 4/17/86 | 160 |
| Owingsville, PA (OWI) | 4/18/86 | 80 |

## Table 2 - Phase II: 8 Pilot Site Sampling Program and 54 Site Sampling Program

### Silt Fence Installation Program

| Compressor Station | Date | Quantity of Silt Fence Material (ft.) |
|---|---|---|
| Station 27A (Linden, NJ) | 11/4/86 | 245 |
| Station 26 (Lambertville,NJ) | 11/5/86 | 70 |
| Bechtelsville, PA (BEC) | 11/6/86 | 72 |
| Station 25 (Eagle, PA) | 11/7/86 | 270 |
| Grantville, PA (GRA) | 11/8/86 | 193 |
| Shermansdale, PA (SHE) | 11/10/86 | 285 |
| Perulack, PA (PER) | 11/11/86<br>11/18/86 | 225<br>(and 75 ft. of Curlex) |
| Entriken, PA (ENT) | 11/12/86 | 100 |
| Lilly, PA (LIL) | 11/12/86 | 55 |
| Armagh, PA (ARM) | 11/13/86 | 132 |
| Delmont, PA (DEL) | 11/14/86 | 125 |
| Station 21A (Connellsville, PA) | 11/15/86 | 490 |
| Station 21 (Uniontown, PA) | 11/17/86 | 135 |
| Station 22A (Bedford, PA) | 11/18/86 | 170 |
| Holbrook, PA (HOL) | 11/19/86 | 260 |
| Berne, OH (BER) | 11/20/86 | 40 |

Table 3 - 60

Total PCB Concentration for
Soil Borings at the
~~Armagh Site:~~
Pit PA-ARM-01

| SAMPLE DEPTH (ft) | SB01 (Outside Pit) RESULT (ug/kg) | SB01 (Outside Pit) DUP (ug/kg) | SB02 (Inside Pit) RESULT (ug/kg) | SB02 (Inside Pit) DUP (ug/kg) | SB03 (Inside Pit) RESULT (ug/kg) | SB03 (Inside Pit) DUP (ug/kg) |
|---|---|---|---|---|---|---|
| 0-2 | 4,100 | | 1500,000 | | 340,000 | |
| 2-4 | ,200 | | 6600J | | 420,000 | |
| 4-6 | ,240 | | N.D. | | 2700,000 | |
| 6-8 | ,230 | | 440,000 | 280,000 | 1600,000 | |
| 8-10 | 5,200 | 1,200 | 120,000 | | N.D. | |
| 10-12 | 2,200 | | 200,000 | | NO SAMPLE | |
| 12-14 | 1,700 | | NO SAMPLE | | NO SAMPLE | |
| 14-16 | N.D. | | NO SAMPLE | | NO SAMPLE | |

Attachment 2



NOTES: Total PCB concentration represents the sum of the concentrations of the seven HSL Aroclors analyzed. Aroclors not detected are assumed to have concentrations equal to zero.
N.D. = Not detected.
DUP = Duplicate sample.

Table 3 - 61

Total PCB Concentration for
Soil Borings at the
Armagh Site:
Pit PA-ARM-02

| SAMPLE DEPTH (ft) | SB04 (Outside Pit) RESULT (ug/kg) | SB04 (Outside Pit) DUP (ug/kg) | SB05 (Inside Pit) RESULT (ug/kg) | SB05 (Inside Pit) DUP (ug/kg) | SB06 (Inside Pit) RESULT (ug/kg) | SB06 (Inside Pit) DUP (ug/kg) |
|---|---|---|---|---|---|---|
| 0-2 | 1900 | | 3500J | | 5800 | |
| 2-4 | N.D. | | 4700 | | 13000 | |
| 4-6 | 8100 | | N.D. | | 470J | |
| 6-8 | N.D. | | N.D. | 680 | 30J | |
| 8-10 | 2200 | | N.D. | | 40J | |
| 10-12 | 36J | | 50J | N.D. | 470 | |
| 12-14 | NO SAMPLE | | N.D. | | 370J | |
| 14-16 | NO SAMPLE | | N.D. | | N.D. | |

NOTES: Total PCB concentration represents the sum of the concentrations of the seven HSL Aroclors analyzed. Aroclors not detected are assumed to have concentrations equal to zero.
N.D. = Not detected.
DUP = Duplicate sample.
J = At least one of the Aroclors has an estimated value below the detection limit.
B = At least one of the Aroclors is present in the blank.

Table 3 - 16

Total PCB Concentration for
Soil Borings at the
Connellsville Site:
Pit PA-21A-01

| SAMPLE DEPTH (ft) | SB08 (Outside Pit) RESULT (ug/kg) | SB08 (Outside Pit) DUP (ug/kg) | SB11 (Inside Pit) RESULT (ug/kg) | SB11 (Inside Pit) DUP (ug/kg) | SB12 (Inside Pit) RESULT (ug/kg) | SB12 (Inside Pit) DUP (ug/kg) |
|---|---|---|---|---|---|---|
| 0-2 | 38,000 | | 2,700 | | ,300 | |
| 2-4 | 83J | | 2,450 | | 4500J | |
| 4-6 | 3,500 | | 3,900 | 4100 | 4,800 | |
| 6-8 | 3,200 | | 120 | | 31,000 | |
| 8-10 | ,100 | 48J | 4,800 | | ,430 | |
| 10-12 | 35J | | 37J | | N.D. | |
| 12-14 | ,490 | | N.D. | N.D. | 17J | |
| 14-16 | 49J | | NO SAMPLE | | NO SAMPLE | |
| 16-18 | N.D. | | NO SAMPLE | | NO SAMPLE | |
| 18-20 | N.D. | | NO SAMPLE | | NO SAMPLE | |

NOTES: Total PCB concentration represents the sum of the concentrations of the seven HSL Aroclors analyzed. Aroclors not detected are assumed to have concentrations equal to zero.
N.D. = Not detected.
DUP = Duplicate sample.
J = At least one of the Aroclors has an estimated value below the detection limit.
B = At least one of the Aroclors is present in the blank.

Table 3 - 17

Total PCB Concentration for
Soil Borings at the
Connellsville Site:
Pit PA-21A-02

| SAMPLE DEPTH (ft) | SB07 (Outside Pit) RESULT (ug/kg) | SB07 (Outside Pit) DUP (ug/kg) | SB09 (Inside Pit) RESULT (ug/kg) | SB09 (Inside Pit) DUP (ug/kg) | SB10 (Inside Pit) RESULT (ug/kg) | SB10 (Inside Pit) DUP (ug/kg) |
|---|---|---|---|---|---|---|
| 0-2 | 250,000 | 60000 | ,220 | | 170 | |
| 2-4 | 48,000 | | 2,800 | | 9,400 | |
| 4-6 | 7500J | | 3,400 | | 8,700 | |
| 6-8 | 76,000 | | 29,000 | | 5,100 | |
| 8-10 | 32,000 | | 24,000 | 16,000 | 70,000 | |
| 10-12 | ,200 | | 77J | | 35J | |
| 12-14 | ,110 | | 23J | | 250 | |
| 14-16 | ,110 | | 72J | N.D. | NO SAMPLE | |
| 16-18 | ,120 | | NO SAMPLE | | NO SAMPLE | |
| 18-20 | 4400J | | NO SAMPLE | | NO SAMPLE | |

NOTES: Total PCB concentration represents the sum of the concentrations of the seven HSL Aroclors analyzed. Aroclors not detected are assumed to have concentrations equal to zero.
N.D. = Not detected.
DUP = Duplicate sample.
J = At least one of the Aroclors has an estimated value below the detection limit.
B = At least one of the Aroclors is present in the blank.

Table 3 - 18

Total PCB Concentration for
Soil Borings at the
Connellsville Site:
Pit PA-21A-03

| SAMPLE DEPTH (ft) | SB04 (Inside Pit) RESULT (ug/kg) | SB04 (Inside Pit) DUP (ug/kg) | SB05 (Inside Pit) RESULT (ug/kg) | SB05 (Inside Pit) DUP (ug/kg) | SB06 (Outside Pit) RESULT (ug/kg) | SB06 (Outside Pit) DUP (ug/kg) |
|---|---|---|---|---|---|---|
| 0-2 | 540,000 | | 440,000 | | 580,000 | |
| 2-4 | 130,000 | | 580,000 | | 530,000B | |
| 4-6 | 100,000B | | 56,000B | | 47,000 | |
| 6-8 | 560J | | 3400,000 | | 18,000 | |
| 8-10 | 2,700 | | 3,000 | | 1,500 | |
| 10-12 | 14000JB | | 23,000 | | 210008 | |
| 12-14 | NO SAMPLE | | 4300B | | ,240 | |



NOTES: Total PCB concentration represents the sum of the concentrations of the seven HSL Aroclors analyzed. Aroclors not detected are assumed to have concentrations equal to zero.
N.D. = Not detected.
DUP = Duplicate sample.
J = At least one of the Aroclors has an estimated value below the detection limit.
B = At least one of the Aroclors is present in the blank.

Table 3 - 19

Total PCB Concentration for
Soil Borings at the
Connellsville Site:
Pit PA-21A-04

| SAMPLE DEPTH (ft) | SB01 (Outside Pit) RESULT (ug/kg) | SB01 (Outside Pit) DUP (ug/kg) | SB02 (Inside Pit) RESULT (ug/kg) | SB02 (Inside Pit) DUP (ug/kg) | SB03 (Inside Pit) RESULT (ug/kg) | SB03 (Inside Pit) DUP (ug/kg) |
|---|---|---|---|---|---|---|
| 0-2 | 1,700 | | 690,000 | | 680,000 | |
| 2-4 | 4,100 | | 230,000 | | 98,000 | |
| 4-6 | 2,000J | | 800,000J | | 65,000 | |
| 6-8 | 300,000 | | 40,000 | | 13,000J | |
| 8-10 | 51,000 | | 28,000 | | 18,000 | 16,500 |
| 10-12 | 12,000 | | 8,300J | | N.D. | |
| 12-14 | 32000J | | NO SAMPLE | | NO SAMPLE | |

NOTES: Total PCB concentration represents the sum of the concentrations of the seven HSL Aroclors analyzed. Aroclors not detected are assumed to have concentrations equal to zero.
N.D. = Not detected.
DUP = Duplicate sample.
J = At least one of the Aroclors has an estimated value below the detection limit.
B = At least one of the Aroclors is present in the blank.

8910161 2

# RESULTS OF THE PHASE II SURFACE SOIL AND SEDIMENT SAMPLING AND ADDITIONAL SAMPLING ACTIVITIES AT THE ROCKWOOD (22) SITE, PA

## VOLUME I

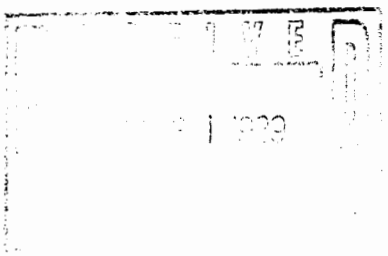
1130R2-2

**Texas Eastern Gas Pipeline Company**

A DIVISION OF TEXAS EASTERN TRANSMISSION CORPORATION

July 28, 1989

Mr. Robert L. Orwan
Division of Special Investigations
Bureau of Waste Management
Pennsylvania Department of
Environmental Resources
3rd & Locust Streets
18 Floor, Fulton Building
P.O. Box 2063
Harrisburg, Pennsylvania 17120-2063



RE: **TEXAS EASTERN TRANSMISSION CORPORATION: RESULTS OF THE PHASE II SURFACE SOIL AND SEDIMENT SAMPLING PROGRAM AND THE ADDITIONAL SAMPLING PROGRAM CONDUCTED AT THE ROCKWOOD (22) PENNSYLVANIA SITE**

Dear Mr. Orwan,

Attached are reports summarizing the results of the Phase II Surface Soil and Sediment Sampling Program ("Phase II Program") and the Additional Sampling Program ("Additional Program") conducted by Texas Eastern at the Rockwood (22) Pennsylvania Compressor Station site.

This work was undertaken by Texas Eastern in accordance with the Surface Soil and Sediment Sampling Plan ("Plan") submitted to the Department of Environmental Resources ("Department") on June 20, 1988 and the terms of a letter submitted to the Department on May 25, 1988, describing site characterization and assessment activities not covered by the April 1, 1987 Consent Order that Texas Eastern intended to conduct. The Plan was approved by the Department subject to certain conditions set forth in a letter dated August 11, 1988 ("Approval Letter"). On September 9, 1988, Texas Eastern appealed several of those conditions to the Environmental Hearing Board. The appeal is pending at EHB Docket No. 88-352-W. Despite the pendency of the appeal and without prejudice to any position Texas Eastern may take in the appeal, Texas Eastern continues to implement the Phase II Program together with the Additional Program.

Please be advised that by implementing the sampling programs and submitting to the Department the enclosed reports, Texas Eastern does not waive or in any way compromise any position it has taken or may take in the appeal. Further, the reports are submitted to the Department without prejudice to any and all contentions or arguments that Texas Eastern has made or raised or that Texas Eastern may wish to make or raise in any proceeding.

Moreover, the statements contained in the reports are not intended and shall in no way be deemed to constitute admissions by Texas Eastern. Texas Eastern specifically does not waive but to the contrary reserves the right to challenge the conditions imposed by the Department in the Approval Letter.

If the Department has any questions concerning the enclosed reports, please let us know.

Sincerely,

R. A. Riess

Attachments

RAR/DCP/njc
b:iirckwod.dcp

cc: D. Wersan, Pennsylvania Department of Environmental Resources
M. E. Gold, State Counsel

# RESULTS OF THE PHASE II SURFACE SOIL AND SEDIMENT SAMPLING AND ADDITIONAL SAMPLING ACTIVITIES AT THE ROCKWOOD (22) SITE, PA

## VOLUME I

# PREFACE

THIS DOCUMENT IS BEING SUBMITTED TO THE PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES ("DEPARTMENT") BY TEXAS EASTERN TRANSMISSION CORPORATION THROUGH ITS TEXAS EASTERN GAS PIPELINE COMPANY DIVISION (COLLECTIVELY "TEXAS EASTERN") PURSUANT TO THE "PLAN FOR THE PHASE II SURFACE SOIL AND SEDIMENT SAMPLING PROGRAM AT THE PENNSYLVANIA SITES" (THE "PHASE II PLAN") DATED JUNE 20, 1988, AND A LETTER FROM S.L. HORTON OF TEXAS EASTERN TO JAMES SNYDER OF THE DEPARTMENT DATED MAY 25, 1988. ON AUGUST 11, 1988, THE DEPARTMENT ISSUED A LETTER APPROVING THE PHASE II PLAN SUBJECT TO TEN CONDITIONS. ON SEPTEMBER 9, 1988, TEXAS EASTERN APPEALED THE DEPARTMENT'S APPROVAL LETTER TO THE PENNSYLVANIA ENVIRONMENTAL HEARING BOARD. SEE TEXAS EASTERN TRANSMISSION CORPORATION, TEXAS EASTERN GAS PIPELINE COMPANY VS. COMMONWEALTH OF PENNSYLVANIA, DEPARTMENT OF ENVIRONMENTAL RESOURCES, EHB DOCKET NO. 88-352-W. TEXAS EASTERN'S APPEAL REMAINS PENDING.

THIS DOCUMENT IS SUBMITTED TO THE DEPARTMENT WITHOUT PREJUDICE TO ANY AND ALL CONTENTIONS OR ARGUMENTS THAT TEXAS EASTERN HAS MADE OR RAISED OR THAT TEXAS EASTERN MAY WISH TO MAKE OR RAISE IN ANY LEGAL PROCEEDING; NOR SHOULD THE SUBMISSION OF THIS DOCUMENT BE CONSTRUED TO MEAN THAT TEXAS EASTERN WAIVES ANY RIGHT TO CHALLENGE IMPLEMENTATION OR ENFORCEMENT OF ANY OF THE CONDITIONS OF THE DEPARTMENT'S APPROVAL LETTER THAT TEXAS EASTERN BELIEVES ARE IMPROPER. MOREOVER, THE STATEMENTS CONTAINED IN THE TEXT OF THIS DOCUMENT ARE NOT INTENDED AND SHALL IN NO WAY BE DEEMED TO CONSTITUTE ADMISSIONS BY TEXAS EASTERN. FINALLY, TEXAS EASTERN SPECIFICALLY DOES NOT WAIVE BUT TO THE CONTRARY RESERVES THE RIGHT TO CHALLENGE THE CONDITIONS IMPOSED BY THE DEPARTMENT IN ITS APPROVAL LETTER.

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## LIST OF ATTACHMENTS

# SECTION 1

# INTRODUCTION

## 1.1 BACKGROUND

On April 1, 1987, Texas Eastern Transmission Corporation and its division Texas Eastern Gas Pipeline Company (collectively "Texas Eastern") entered into a Consent Order and Agreement ("Consent Order") with the Commonwealth of Pennsylvania, Department of Environmental Resources ("Department"). Pursuant to the Consent Order, Texas Eastern agreed to investigate environmental conditions at 18 station sites in Pennsylvania owned by Texas Eastern. These 18 station sites are collectively referred to as the "Pennsylvania Sites." Their locations are shown in Figure 1-1.

Pursuant to Paragraphs 14(a) through (d), 16(b) and (c), and 17(a) and (c) of the Consent Order, Texas Eastern agreed to conduct offsite surface soil sampling, stream sediment sampling, and onsite surface soil sampling, respectively, at the Pennsylvania Sites. Specifically, the Consent Order calls for onsite surface soil sampling at "Exhibit A" areas as defined in the Consent Order, offsite surface soil sampling adjacent to fencelines downslope of the site, and sediment sampling in identified streams and drainage ditches originating onsite or receiving drainage from the site.

In compliance with the Consent Order, Texas Eastern conducted a surface soil and sediment sampling program at the Rockwood (22) site in Somerset County, Pennsylvania. The location of the Rockwood (22) site is shown on the U.S.G.S. 7.5 minute Murdock quadrangle map in Figure 1-2. The program was conducted in two phases. Phase I field work was conducted from November 30 to December 2, 1987, and consisted of collecting and analyzing onsite surface soil samples at "Exhibit A" areas, offsite surface soil samples adjacent to fencelines downslope of the site, and sediment samples in identified streams and drainage ditches. The results of the Phase I investigation were presented in a summary report submitted to the Department on January 29, 1988. These sampling activities will be referred to in this report as the "Phase I Sampling."

Phase II activities at the Rockwood (22) site consisted of collecting offsite surface soil and sediment samples. The Phase II activities were based on the results of the Phase I investigation as required under the Consent Order. These sampling activities will be referred to in this reports as the "Phase II Sampling."

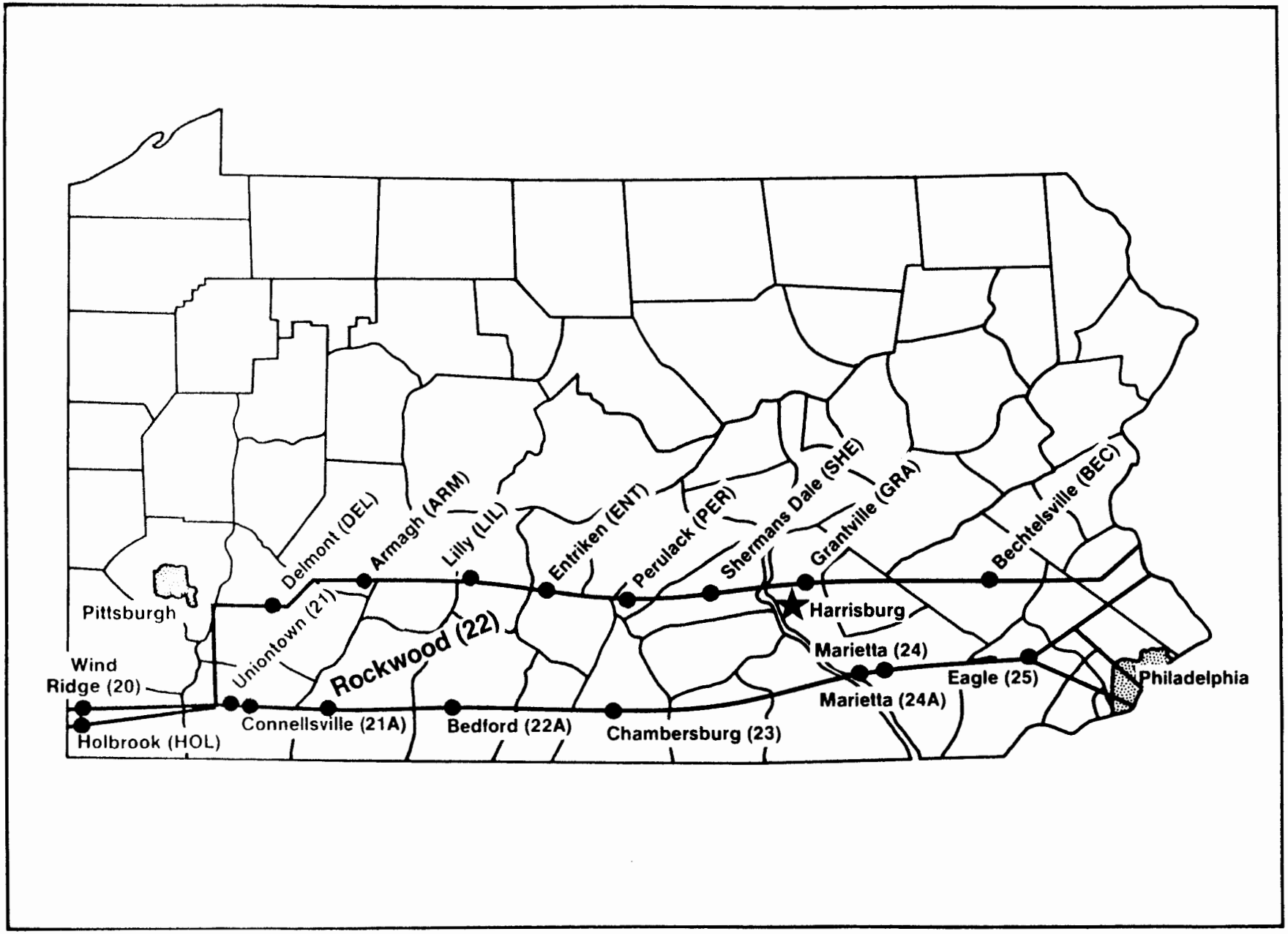


**FIGURE 1-1 LOCATIONS OF THE PENNSYLVANIA SITES**

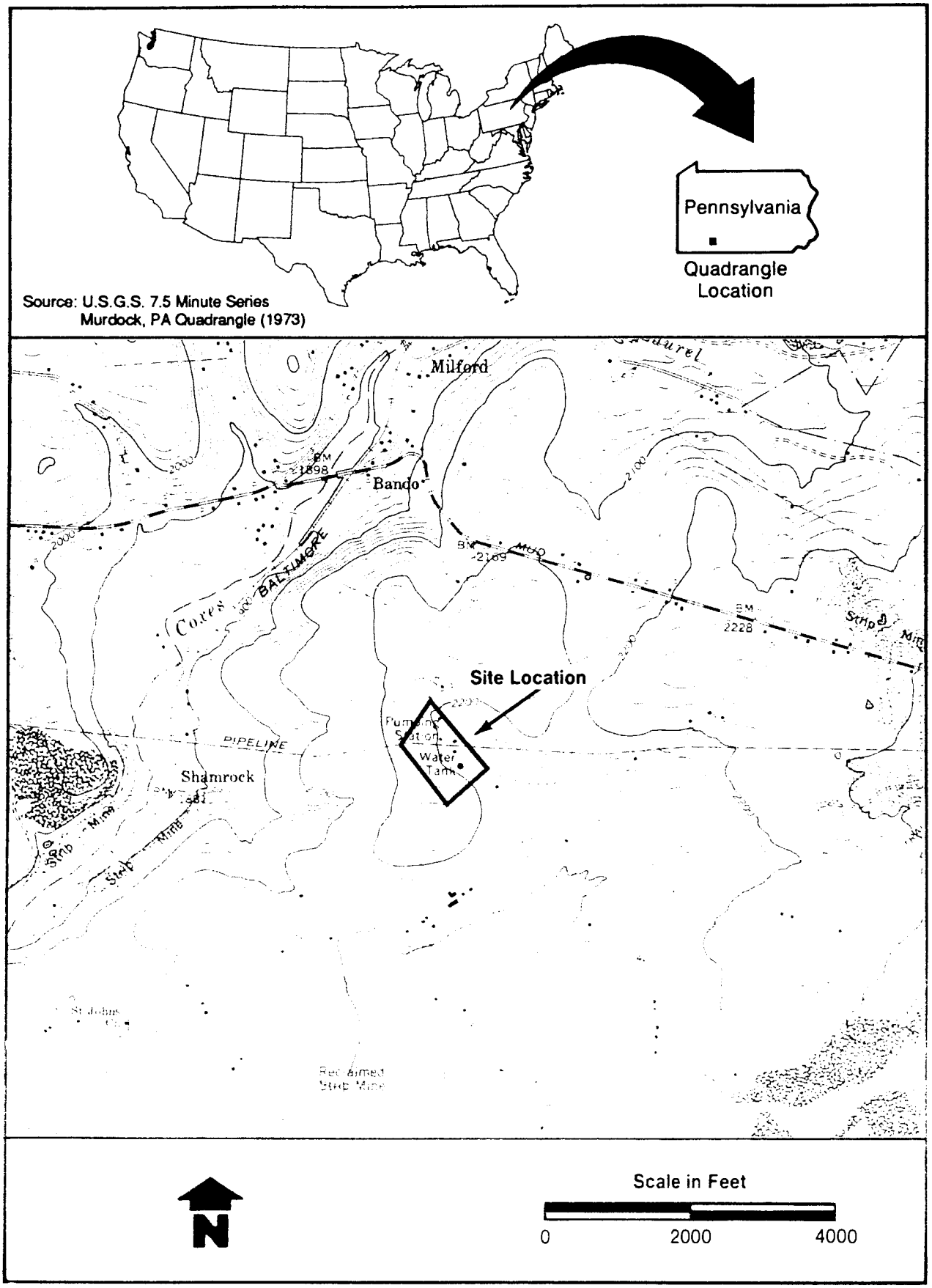


**FIGURE 1-2 LOCATION OF THE ROCKWOOD (22) SITE, PENNSYLVANIA**

In addition to the Phase II Sampling conducted pursuant to the Consent Order, Texas Eastern conducted sampling in areas not covered by the Consent Order. This sampling was conducted simultaneously with the Phase II Sampling. These sampling activities will be referred to in this report as "Additional Sampling."

This report presents the results of the Phase II Sampling and the Additional Sampling at the Rockwood (22) site.

## 1.2 PROGRAM OVERVIEW AND OBJECTIVES

The Phase II Sampling and Additional Sampling were conducted by WESTON at the Rockwood (22) site on April 13, 1989. Samples were analyzed by Enseco Rocky Mountain Analytical Laboratory in Arvada, Colorado. All samples were analyzed for polychlorinated biphenyls (PCBs). R.M. Keddal and Associates, Inc. of Library, Pennsylvania, was the surveying contractor.

The objective of the combined Phase II Sampling and Additional Sampling was to characterize the presence of PCBs at the Rockwood (22) site by further sampling of surface soils and sediments. As part of the Phase II Sampling, sediment samples were collected at and around each Phase I sediment sampling location having a total PCB concentration greater than 1 part per million (ppm). Additional Sampling activities were conducted, including sampling of onsite surface soils, in accordance with Texas Eastern's May 25, 1988, letter to the Department.

Surface soil and sediment sampling was conducted until specific levels, referred to in this report as "Sampling Levels," were attained. The Sampling Levels utilized for surface soil and sediment samples collected for the Phase II Sampling and Additional Sampling are summarized in Table 1-1. The Sampling Levels specified for Phase II onsite and offsite surface soils were attained during the Phase I Sampling.

Further characterization to a PCB concentration level of 1 ppm at a downslope fenceline (offsite) was performed at the Rockwood (22) site using surface soil grid sampling. For onsite surface soils, further characterization to a PCB concentration level of 1 ppm was not required since this level was attained during the Phase I Sampling.

The plans and other documents which form the basis for the Phase II Sampling and the Additional Sampling include:

- "Summary Report for the Phase I Surface Soil and Sediment Sampling Program at the Rockwood, Pennsylvania, Site," WESTON, January 29, 1988.

Table 1-1

Surface Soil and Sediment Sampling Levels for the Phase II Sampling and Additional Sampling at the Rockwood (22) Site

| Media | Sampling Levels |
|---|---|
| Onsite Surface Soils | |
| Additional | 25 or 10 ppm* |
| Offsite Surface Soils | 5 ppm |
| Sediments | 1 ppm |

*Sampling Level specified in Texas Eastern's letter to the Department dated May 25, 1988.

- Letter from S.L. Horton of Texas Eastern to James P. Snyder of the Department, dated May 25, 1988, identifying additional sampling activities (including onsite areas not covered by the Consent Order and equipment surface sampling) to be conducted at the Pennsylvania Sites.

- Conditional approval letter of the Phase II surface soil and sediment sampling program at the Pennsylvania Sites from Robert L. Orwan of the Department to S.L. Horton of Texas Eastern, dated August 11, 1988.

- Letter dated August 26, 1988, from R.A. Riess of Texas Eastern to Robert L. Orwan of the Department, in response to the Department's conditional approval letter of August 11, 1988.

- Letter dated October 10, 1988, from R.A. Riess of Texas Eastern to Robert L. Orwan of the Department justifying the elimination of non-PCB sampling and analysis of surface soils at the Pennsylvania Sites.

- Letter dated November 22, 1988, from Michael M. Meloy, Esquire, of Wolf, Block, Schorr and Solis-Cohen to David Wersan, Esquire, of the Department setting forth the resolution of certain issues contested by Texas Eastern in its appeal of the Department's conditional approval of the Phase II surface soil and sediment sampling program and identifying other issues that remain to be resolved.

## 1.3 SCOPE OF WORK

To meet the objectives of the Phase II Sampling and the Additional Sampling, the following work was performed:

- Surface soil samples were collected at each location indicated on Attachment 1 and analyzed for PCBs. Each sample was collected at a depth between 0 to 6 inches starting at ground surface.

- Offsite surface soil samples were collected at each location indicated on Attachment 2 and analyzed for PCBs. Each sample was collected at a depth between 0 to 6 inches starting at ground surface.

- Offsite sediment samples were collected from an identified stream at each location shown on Attachment 3 and analyzed for PCBs. Each sample consisted of a composite of three discrete subsamples collected across

the stream/ditch transect. Where the stream was too narrow to sample across a transect, a single discrete sample was collected in an area where sediment deposition seemed most apparent. Each sediment sample was collected at a depth between 0 to 6 inches.

## 1.4 REPORT ORGANIZATION

This report, presented in two volumes, summarizes the results of the Phase II Sampling and the Additional Sampling conducted at the Rockwood (22) site. Documentation of the assessment conducted is provided in Section 2. Section 3 presents the findings of the Phase II Sampling and Additional Sampling at the Rockwood (22) site. Attachments 1 through 3 are maps showing the locations of samples collected in the Phase II Sampling and Additional Sampling. Attachment 4 shows the total PCB concentrations in surface soils collected during the Phase I Sampling, Phase II Sampling, and Additional Sampling. Attachment 5 shows areas projected to contain surface soils above a characterization level of 1 ppm total PCB concentration, as required by the Consent Order.

Volume II contains appendices to the report. Appendix A provides a summary of information (including location codes and coordinates, date of collection, and laboratory sample codes) compiled for each sample collected during the Phase II Sampling and Additional Sampling at the Rockwood (22) site. Appendix B contains the sampling methodology and procedures used for sampling activities. Analytical results and supporting quality control and sample identification information for onsite surface soil, offsite surface soil, and sediment samples are provided in Appendix C.

# SECTION 2

# PHASE II SAMPLING AND ADDITIONAL SAMPLING ACTIVITIES

## 2.1 SUMMARY OF FIELD INVESTIGATION

The field activities at the Rockwood (22) site described in this report were conducted on April 13, 1989. Field operations were performed in accordance with the plans and documents developed for the Pennsylvania Sites as identified in Section 1. A summary of the methods of investigation is provided in Appendix B. Table B-2 in Appendix B provides an explanation of the sample identification codes.

A total of 15 samples, excluding quality control (QC) samples, was collected during the Phase II Sampling and Additional Sampling. Of these, eight were collected in compliance with the Consent Order and seven were collected as part of the Additional Sampling activities. All samples were analyzed for PCBs. A summary of the samples collected for the Phase II Sampling and Additional Sampling at the Rockwood (22) site is provided in Table 2-1.

## 2.2 ONSITE SURFACE SOIL SAMPLING

### 2.2.1 Additional Sampling

Additional surface soil samples, not required by the Consent Order but specified in Texas Eastern's letter to the Department of May 25, 1988, were collected at grid nodes in one grid area (grid A). In addition, one homogenized sample and two background samples were collected in areas not sampled as part of the Phase I and Phase II Sampling. The homogenized sample is a composite of samples taken from three distinct locations surrounding an oil/water separator.

A total of seven onsite samples (including one homogenized sample and excluding QC samples) was collected as follows:

- Grid A: 5 samples (including one homogenized sample). This area includes an oil/water separator.
- Background: 2 samples. These samples were collected from an upgradient area of the site not expected to be impacted by site operations.

Total PCB concentrations for these samples are provided in Table 2-2. Attachment 1 shows the sample locations. A summary of information compiled for each sample is provided in Table A-1, Appendix A. Laboratory data are provided in Appendix C.

Table 2-1

Summary of Samples Collected in the Phase II Surface Soil and Sediment Sampling and Additional Sampling at the Rockwood (22) Site

| | Number of Phase II Samples Required by the Consent Order | Number of Additional Samples Not Required by the Consent Order | Total |
|---|---|---|---|
| ONSITE SURFACE SOILS | --- | 7 | 7 |
| OFFSITE SURFACE SOILS | 2 | --- | 2 |
| SEDIMENTS | 6 | --- | 6 |
| QUALITY CONTROL (QC) | | | |
| Duplicates | 1 | --- | 1 |
| Triplicates | --- | 1 | 1 |
| Blanks* | 1 | --- | 1 |
| TOTAL | 10 | 8 | 18 |

*Includes field blanks.

Table 2-2

Total PCB Concentrations for Onsite
Additional Surface Soil Samples at the
Rockwood (22) Site

| Location ID | Sample ID[a] | Total PCB Concentration[b] (ppm) |
|---|---|---|
| A01X | 011U | ND |
| A54S | 001U | ND |
| A54T | 001U | ND |
| A55S | 001U | ND |
| A55T | 001U | ND |
| X016 | 001U | ND |
| X017 | 001U | ND |

[a]001 indicates a routine sample. 011 indicates a composite sample. U indicates a sample collected as part of additional sampling specified in Texas Eastern's letter to the Department dated May 25, 1988.

[b]Total PCB concentration represents the sum of the seven HSL Aroclors. This concentration is reported in the laboratory data packages in units of micrograms per gram (ug/g), which is equivalent to parts per million (ppm). Concentrations are reported here in units of ppm. Analytes not detected are assumed to have concentrations equal to zero. Analytes present below minimum quantitation limit of 1 ppm are not included in the summation of the seven HSL Aroclors.

ND = Not detected.

## 2.3 OFFSITE PHASE II SURFACE SOIL SAMPLING

In compliance with the Consent Order, two surface soil samples were collected offsite in an area that is downgradient of the site. These samples were collected from grid locations that were established along the downslope fenceline and previously sampled during the Phase I investigation (offsite grid A). Since PCBs were not detected in any of the offsite Phase I samples except AA03 and AA07, these locations were resampled in Phase II.

Total PCB concentrations for these samples are provided in Table 2-3. Attachment 2 shows the sample locations. A summary of information compiled for each sample is provided in Table A-2, Appendix A. Laboratory data are presented in Appendix C.

## 2.4 CHARACTERIZATION OF SURFACE SOILS TO A 1 PPM TOTAL PCB CONCENTRATION AS REQURIED BY THE CONSENT ORDER

In the onsite grid (grid A) at the Rockwood (22) site, the 1 ppm characterization level was achieved by surface soil grid sampling. This occurred during Phase I Sampling. This grid area is referred to as Area I shown on Attachment 5. A summary of information compiled for each sample is provided in the Phase I summary report submitted to the Department on January 29, 1988.

## 2.5 SEDIMENT SAMPLING

A total of six sediment samples (excluding QC samples) was collected as part of the Phase II Sampling in a manner consistent with the Consent Order. Sampling continued both upstream and downstream from bracketed stream segments with total PCB concentrations greater than 1 ppm until two consecutive samples each contained total PCB concentrations less than or equal to the Sampling Level of 1 ppm. Due to the absence of detectable concentrations in onsite surface soils, two sediment locations that had shown detectable PCB concentrations during Phase I sampling (ZA03 and ZA04) were resampled. Total PCB concentrations for these samples are listed in Table 2-4. Attachment 3 provides the sampling locations. A summary of information compiled for each sediment sample is provided in Table A-3, Appendix A. Laboratory data are provided in Appendix C.

Table 2-3

Total PCB Concentrations for Offsite
Phase II Surface Soil Samples at the
Rockwood (22) Site

| Location ID | Sample ID[a] | Total PCB Concentration[b] (ppm) |
|---|---|---|
| AA03 | 001F | ND |
| AA07 | 001F | ND |

[a]001 indicates a routine sample. F indicates an offsite sample.

[b]Total PCB concentration represents the sum of the seven HSL Aroclors. This concentration is reported in the laboratory data packages in units of micrograms per gram (ug/g), which is equivalent to parts per million (ppm). Concentrations are reported here in units of ppm. Analytes not detected are assumed to have concentrations equal to zero. Analytes present below minimum quantitation limit of 1 ppm are not included in the summation of the seven HSL Aroclors.

ND = Not detected.

Table 2-4

Total PCB Concentrations for Phase II
Sediment Samples at the
Rockwood (22) Site

| Location ID | Sample ID[a] | Total PCB Concentration[b] (ppm) |
|---|---|---|
| ZA03 | 001F | 1.9 |
| ZA04 | 001F | 3.6 |
| | 002F | 3.3 |
| | 020F | 6.4 |
| ZA05 | 001F | 3.8 |
| ZA06 | 001F | ND |
| ZA07 | 001F | 1.0 |
| ZA08 | 001F | ND |

[a]001 indicates a routine sample. 002 indicates a duplicate sample. 020 indicates a triplicate sample. F indicates an offsite sample.

[b]Total PCB concentration represents the sum of the seven HSL Aroclors. This concentration is reported in the laboratory data packages in units of micrograms per gram (ug/g), which is equivalent to parts per million (ppm). Concentrations are reported here in units of ppm. Analytes not detected are assumed to have concentrations equal to zero. Analytes present below minimum quantitation limit of 1 ppm are not included in the summation of the seven HSL Aroclors.

ND = Not detected.

# SECTION 3

# FINDINGS

## 3.1 ONSITE AND OFFSITE SURFACE SOILS

PCBs were not detected at concentrations greater than the Sampling Levels in any onsite or offsite grids. Attachment 4 is a map showing total PCB concencentrations for surface soil samples that were collected during the Phase I Sampling, Phase II Sampling, and Additional Sampling.

Surface soils were characterized, as required by the Consent Order, by grid sampling in the onsite and offsite areas as shown in Attachment 5.

## 3.2 SEDIMENTS

PCBs were detected at concentrations above 1 ppm in stream A.